

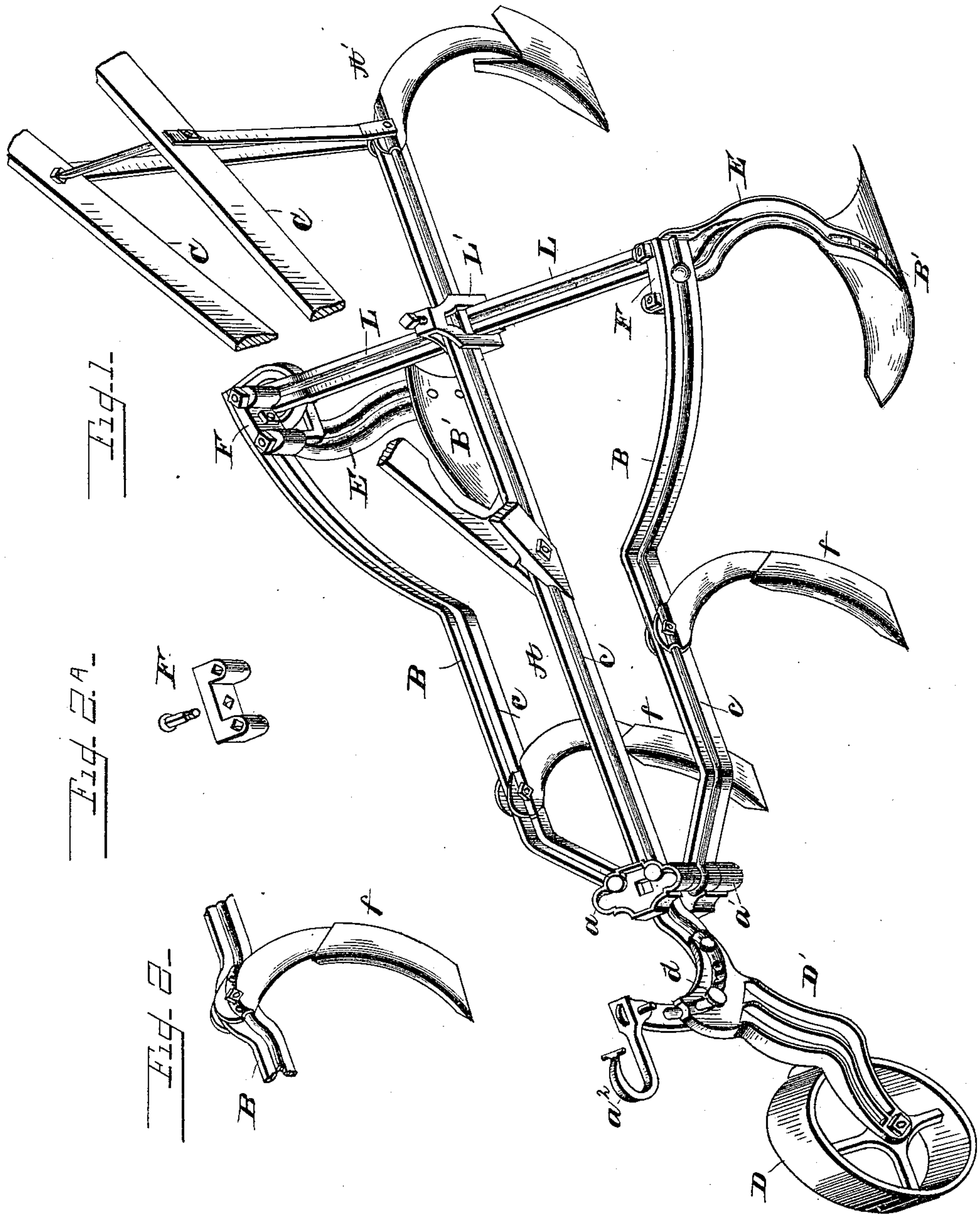
(No Model.)

W. M. BRINKERHOFF.  
CULTIVATOR.

2 Sheets—Sheet 1.

No. 405,942.

Patented June 25, 1889.



Witnesses

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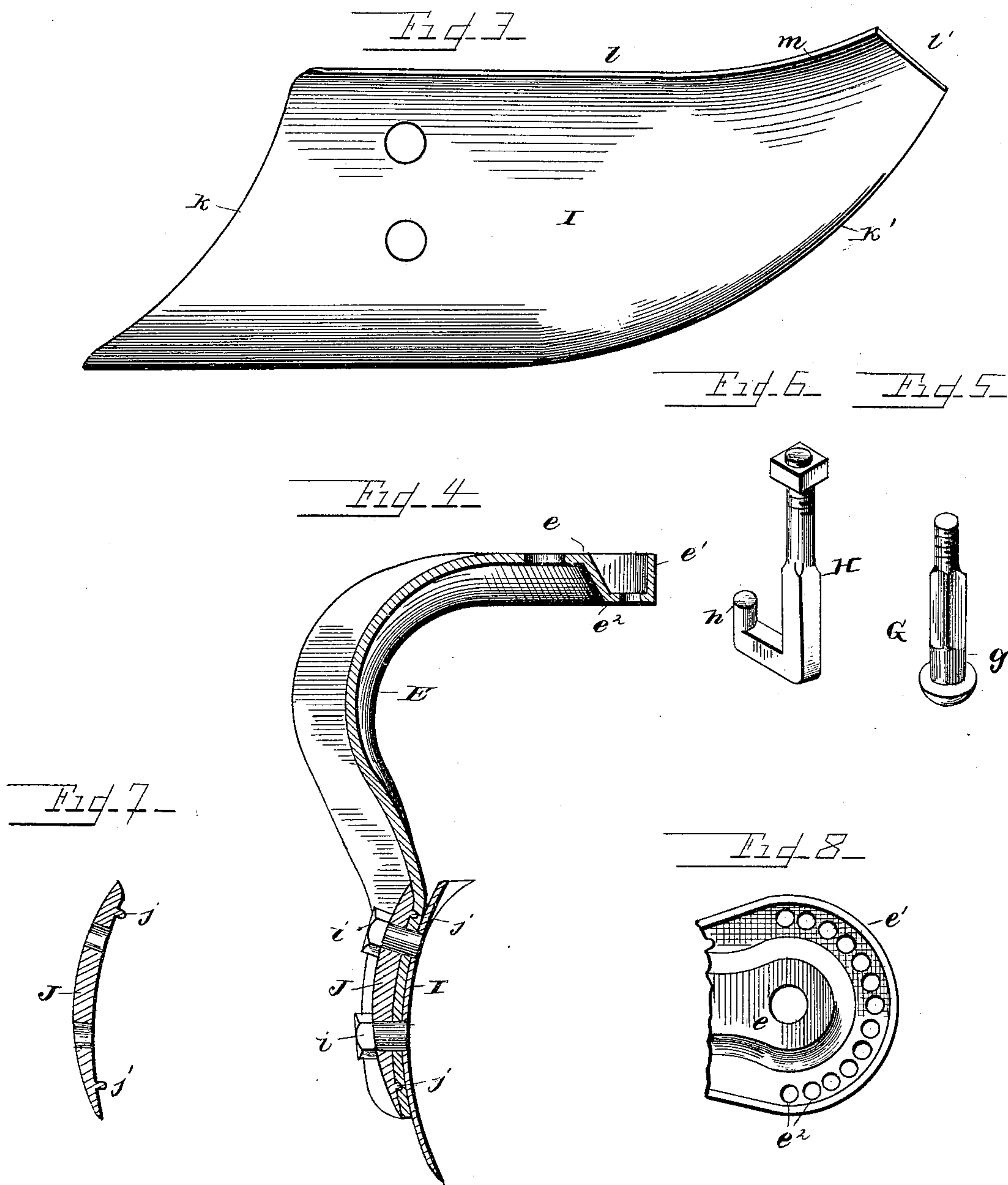
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Witnesses

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Inventor

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# UNITED STATES PATENT OFFICE.

WARREN M. BRINKERHOFF, OF AUBURN, NEW YORK.

## CULTIVATOR.

SPECIFICATION forming part of Letters Patent No. 405,942, dated June 25, 1889.

Application filed March 23, 1889. Serial No. 304,403. (No model.)

*To all whom it may concern:*

Be it known that I, WARREN M. BRINKERHOFF, a citizen of the United States, residing at Auburn, in the county of Cayuga and State of New York, have invented certain new and useful Improvements in Cultivators; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to the class of cultivators; and the object of the same is to produce an implement of this kind which can be cheaply made, one the construction of which will permit of the quick and easy adjustment of its different parts when required, and which will at the same time be light and strong throughout. The peculiarities of construction whereby the cheapening of the construction is secured and the other results accomplished is shown in the accompanying drawings, and set forth in the following description and claims.

In the drawings, Figure 1 is a perspective view of my improved cultivator. Fig. 2 is a view of certain parts, showing my improved manner of adjusting the forward and rear teeth. Fig. 2<sup>a</sup> is a detail view of a part. Fig. 3 is a side view of one of the hoeing-blades. Fig. 4 is a sectional view of the hoeing-blade-supporting arm. Fig. 5 is a view of its attaching-bolt. Fig. 6 is a view of the bolt employed for adjusting and securing it. Fig. 7 is a partial top view of the arm, and Fig. 8 is a section of a device used in connection therewith.

Cultivators have been made both with wooden and metal frames. The metallic frames heretofore employed have been made of flat iron or steel bars disposed in much the same relation as those here shown—that is to say, with a central bar A and two side bars B, these bars being held together at the front end by plates *a a'*, with which the side bars form a hinge-connection. The central bar A extends forward of this plate, and is provided at its front end with a draft attachment, as *a*<sup>2</sup>. It also extends rearwardly beyond the side bars, and has the cultivator-tooth A' attached to it at or near its rear end, and the side bars B B have the cultivator-teeth *b b*

and the hoeing-blades B' B' secured thereto. Handles C C are secured to the central bar for guiding and controlling the cultivator when in operation. In these particulars the construction of my improved cultivators is much the same as others heretofore constructed.

In order to enable me to use lighter material for the bars of the frame and yet secure the required strength or rigidity, and to assist in the securing of the different adjunctive devices to such bars, and to enable the adjustment of such adjunctive parts to be quickly and easily effected, I make the bars A B B with a central corrugation *c*. The forward end of the central bar is curved, as shown, and the wheel D mounted in a bracket D', the upper end of which is provided with curved grooves fitting the rib of the curved portion of the central bar. The bracket is provided with a number of bolt-holes, and the curved part of the central bar is provided with one with which the holes in the bracket can be brought to register by moving the bracket upon the curved rib. A bolt *d*, passing through the bracket and bar, secures the bracket in place. The wheel can thus be secured in position by a single bolt, and it can be adjusted to different positions to regulate the depth of the cutting of the cultivator by changing the bolt from one to another of the holes in the bracket. In the drawings two bolts are shown, and this construction may be employed when desired; but one is all that is necessary when corrugated bars are employed.

The cultivator-teeth *b b* and A' are attached to the bars A and B B, in a like manner, by a single bolt by having the top of the standards to which they are attached provided with an attaching-clip extending on one or both sides of the bar, and provided with a rib fitting the groove on one side, or a groove fitting the rib on the other. A single attaching-bolt passing through the clip and bar will hold the parts securely together. In order to provide for the adjustment of the standards, I may curve the bars, as shown in Fig. 2, and fit the attaching-clip thereto and provide with a sufficient number of bolt-holes to permit of all required adjustment of the standards. The lower ends of the handles are secured in like manner to the central bar by a



single bolt. These may be made adjustable to different positions, if desired.

The standards E of the hoeing-blades B' B' are made in the form best shown in Fig. 4, and are made from thin metal, preferably steel or malleable iron. The upper portion of these standards is formed as best shown in Fig. 6, and has a central portion *e*, which is provided with a circular opening to receive the attaching-bolt, and an outer vertical flange-wall *e'*. Between these two is a depressed portion *e''*, on which there is a series of concentric holes *e*. At the rear ends of the bars B B are two blocks F, (shown separately in Fig. 2<sup>a</sup>,) each provided with a rib engaging the groove in the bars secured by a single bolt. The opening through block F is polygonal, and the attaching-bolt is of a form to fit this opening, so that the bolt will be held from turning and the loosening of the nut prevented. The rear end of this block is provided with a polygonal vertical hole or opening, and a bolt G, having a rounded portion *g*, fitting the aperture in block F, is employed to secure the standard E to the block, the rounded portion of the bolt engaging the standard, the polygonal portion engaging the aperture or opening in the block, so that the standard, when otherwise free, will turn readily upon the bolt as a pivot and the bolt will be held from turning, thereby preventing the nut of the bolt from loosening.

In the forward ends of the blocks F is an opening, in which is placed the L-shaped bolt H, (shown in Fig. 5,) the tip *h* of which engages one of the openings *e''* in the head of the standard and holds the latter in the position desired. The standard is adjusted by loosening the bolt H and turning the standard to the desired position and causing the tip *h* to re-enter the aperture registering therewith and tightening the bolt. The flanges *e'* are carried down to the lower end of the standard, and the standard at that point is given a U-shaped form in cross-section. These portions of the standards are provided with two openings each, through which extend two bolts secured to the hoeing-blades I. These bolts also pass through a loose or detachable filling-piece J, which carries the nuts of the bolts *i i* so far rearward that they can be easily reached notwithstanding the flanges upon the standards. This filling-piece is preferably provided with two short lugs or projections *j j*, which enter corresponding recesses in the inner or rearward wall of the standard, and when so placed and the nuts on bolts *i i* are tightened the blade-standard and its fitting-piece are rigidly secured together.

The reversible hoeing-blades I are of different form from those heretofore constructed. Among the different forms of blades made for this use there is one which has been used to a greater extent than any other. In this construction of hoeing-blade the body of the blade is curved throughout its entire length, and one end is slightly inclined, while the other

end is curved, so as to merge into the lower edge of the blade and form with the upper edge a point, both ends being ground to a sharp edge. This form is objectionable, as by it a narrow point is formed at the junction of the curved side and upper edge, the strength of which is still further reduced by sharpening the curved end of the blade, and when the blade is turned to bring this point in advance it is liable to be broken or battered by contact with stones or other obstructions near the surface of the ground, resulting in injury to the appearance of the cultivator, and producing rough or ragged edges, which lessen the utility of the blade and render it liable to clog. By my construction those evils are avoided and other beneficial results secured. The plate is a plate of thin metal, preferably steel, and is of the form best shown in Fig. 3.

I construct my blade so as to avoid these objections. The blade I is constructed with the end K inclined. The other end K' is curved upwardly, while the upper edge *l*, instead of being straight adjacent to the end of K', is curved upwardly, and the upper edge is joined to the curved end K' by a short straight line of edge *l'*. The blade is curved throughout its length. The end K' being sharpened, all the advantages of the old form of blade are secured, as the curved edge extends nearly, if not quite, as far upward as the like edge in the old construction, while the upward curvature of the upper edge and the short straight connection with the edge *l'* greatly strengthens this point of the blade and prevents injury thereto.

The side bars B B are connected with the central bar A by links L L and a clamp L', in a well-known way, the ends of these links passing between the upper end of the standards E and the blocks F F and engaging the rounded portion of bolts G. The bolts by which the teeth *b b* and A' are attached to their respective bars may be polygonal, to prevent the turning of the bolt and the loosening of the nut, the construction being similar to that shown in Fig. 2<sup>a</sup> for securing the blocks F.

What I claim, and desire to secure by Letters Patent, is—

1. The combination of a cultivator-frame consisting of corrugated metallic bars having vertically-curved portions, and standards provided with curved portions adapted to engage the curved corrugated portions of said frame, and attaching-bolts, substantially as described.

2. A cultivator-frame and a perforated block F, in combination with a blade-supporting arm having a laterally-projecting flange at its upper end provided with a series of openings and an L-shaped securing-bolt, substantially as described.

3. The within-described reversible blade curved throughout its length, having an inclined end and a curved end merging into the lower edge of the blade, said curved end be-



ing connected to the upper edge by a short straight edge at an angle to the upper edge, substantially as described.

4. The within-described reversible blade  
5 curved throughout its length, having an inclined end and a curved end, the latter being merged into the lower edge of the blade, the upper edge having an upper curve and such curved edge connected with the curved end  
10 by a short straight edge, substantially as described.

5. The combination, with a cultivator-bar and a blade-arm having a laterally-projecting flange at its upper end provided with a series

of openings, of the devices for securing said 15 arm to the said bar, consisting of a block, a bolt pivotally securing said arm to the block, and an L-shaped bolt, polygonal in cross-section, fitting a like opening in said block, and having a projection for engaging the openings 20 in the lateral flange of the blade-arm, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

WARREN M. BRINKERHOFF.

Witnesses:

C. B. QUICK,

W. A. NYE.